agents in environmental monitoring (João Costa Seco, Carlos Pinto-Ferreira and Luís Correia). Assessing the role of social development in the evolution of cooperation (Ezequiel A. Di Paolo). Formation of morphology and morpho-function in a linear-cluster robotic system (Naoki Kawai and Fumio Hara). Collective sorting and segregation in robots with minimal sensing (Chris Melhuish, Owen Holland and Steve Hoddell). Tough guys don't dance: Intention movements and the evolution of signalling in animal contests (Jason Noble). Collective learning for spatial collaboration (Cyril Panatier, Hervé Luga and Yves Duthen). Adaptation to multiple robots organization with organizational knowledge on formation (Keiki Takadama, Koichiro Hajiri, Tatsuya Nomura, Shinichi Nakasuka and Katsunori Shimohara). Robot sheepdog project archieves automatic flock control (Richard Vaughan, Neil Sumpter, Andy Frost and Stephen Cameron).

Evolution. Emergence of functional modularity in robots (Raffaele Calabretta, Stefano Nolfi, Domenico Parisi and Günter P. Wagner). Coevolving communicative behavior in a linear pursuer-evader game (Sevan G. Ficici and Jordan B. Pollack). Competitive coevolutionary robotics: From theory to practice (Dario Floreano, Stefano Nolfi and Francesco Mondada). Animal-animat coevolution: Using the animal population as fitness function (Pablo Funes, Elizabeth Sklar, Hugues Juillé and Jordan Pollack). Perpetuating evolutionary emergency (A.D. Channon and R.I. Damper). Evolutionary design of morphology and intelligence in robotic system using genetic programming (Kohki Kikuchi and Fumio Hara). Mate Choice and NK-landscapes (Patricio Lerena and Michèle Courant). Component-based adaptive architecture with classifier systems (Sotaro Shimada and Yuichiro Anzai). Evolution of protean behavior in pursuit-evasion contests (Mattias Wahde and Mats G. Nordahl). Author index.

Formal Equivalence Checking and Design Debugging. By Shi-Yu Huang and Kwang-Ting (Tim) Cheng. Kluwer Academic Publishers, Boston, MA. (1998). 229 pages. $106.50, NLG 245.00, GBP 72.50.

Contents:

Foreword. Preface. 1. Introduction. I. Equivalence checking. 2. Symbolic verification. 3. Incremental verification for combinational circuits. 4. Incremental verification for sequential circuits. 5. AUQILA: A local BDD-based equivalence verifier. 6. Algorithm for verifying retimed circuits. 7. RTL-to-gate verification. II. Logic debugging. 8. Introduction to logic debugging. 9. ErrorTracer: Error diagnosis by fault simulation. 10. Extension to sequential error diagnosis. 11. Incremental logic rectification. Bibligraphy. Index.

Advanced Techniques for Embedded Systems Design and Test. Edited by Juan Carlos López, Román Hermida and Walter Geisselhardt. Kluwer Academic Publishers, Boston, MA. (1998). 290 pages. $125.00, NLG 285.00, GBP 85.00.

Contents:

Contributors. Preface (Juan Carlos López, Román Hermida and Walter Geisselhardt). 1. Embedded system specification (Eugenio Villar and Maite Veiga). 2. Supporting early system-level design space exploration in the deep submicron era (Margarida F. Jacome and Juan Carlos López). 3. Knowledge based hardware-software partitioning of electronic systems (María Luisa López-Vallejo and Juan Carlos López). 4. An industrial case study in HW-SW co-design using CASTLE (Paul G. Plöger, Horst Günther and Eduard Moser). 5. Automatic formal derivation applied to high-level synthesis (José Manuel Mendías and Román Hermida). 6. Overlapped scheduling techniques for high-level synthesis and multiprocesor realizations of DSP algorithms (Sabih H. Gerez, Sonia M. Heemstra de Groot, Erwin R. Bonsma and Marc J.M. Heijligers). 7. Synthesis of reconfigurable control devices based on object-oriented specifications (Valery Sklyarov, António Adrego da Rocha and António de Brito Ferrari). 8. Estimation of circuit physical features in high-level synthesis based on standard cells (Milagros Fernández and Hortensia Mecha). 9. Test synthesis of digital systems (Pablo Sánchez and Víctor Fernández). 10. Advances in ATPG by exploiting the behavioral view (Walter Geisselhardt and Heinz-Dieter Huemmer). 11. Behavioral fault simulation (Jean-François Santucci, Paul Bisgambiglia and Dominique Federici). Index.

Mechanics of Sandwich Structures: Proceedings of the EUROMECH 360 Colloquim held in Saint-Étienne, France, 13-15 May 1997. Edited by A. Vautrin. Kluwer Academic Publishers, Dordrecht. (1998). 430 pages. $189.00, NLG 350.00, GBP 119.00.

Contents:

Introduction. Acknowledgments.

General lectures. Classification of structural sandwich panel behaviour (H.G. Allen and Z. Feng). The development of sandwich structures for naval vessels during 25 years (K.E. Mäkinen, S.E. Hellbratt and K.A. Olsson). Damage tolerance of aeronautical sandwich structures (D. Guedra-Degeorges, P. Thevenet and S. Maison). Modeling of the crash behaviour of edge loaded sandwich structures with fibre reinforced polymer faces (S. Kerth, M. Maier and M. Nohr).

Contributions. Finite element modelling. A comparative analysis of some theories and finite elements for sandwich plates and shells (P. Vannucci, S. Aivazzadeh and G. Verchery). Static analysis of sandwich plates of finite elements (V. Manet, W.S. Han and A. Vautrin). A refined multilayered FEM model applied to sandwich structures (E. Carrera and F. Niglia). A refined shear-deformation sandwich finite element (O. Polit and M. Touratier). Comparison of three shear-deformation theories in the non-linear analysis of sandwich shell elements (A.M. Ferreira, A. Torres Marques and J. César de Sá). On shear and bending membrane coupling in sandwich shells and elastic or viscoelastic core (A. Benjeddou). Bending, buckling and free vibration of sandwich composite beams with a transverse shear stress continuity model (M. Karama, B. Abou Harb, S. Mistou and S. Caperaa).

Modelling. Stress distribution in a 4-point or 3-point bending probe (H.R. Meyer-Piening). Saint-Venant's principle for sandwich structures (C.O. Horgan and S.C. Baxter). Membrane analogy for sandwich panels in thermally or piezoelectrically induced bending (K. Hagenauer and H. Irschik). Homogenization of periodic sandwiches (S. Bourgeois, P. Cartraud and O. Débordes). Characterization and simulation of the mechanical behaviour of multilayered components composing a fibrous cylinder head gasket (M.D. Dupuits, M. Boussuge and S. Forest). Prediction of elastic properties of sandwich panels using a homogenization computational model (G. Vougiouka, H. Rodrigues and J.M. Guedes).

Buckling and singularities. Effects of boundary conditions in high-order buckling of sandwich panels with transversely flexible core (V. Sokolinsky and Y. Frostig). A study on the influence of local buckling on the strength of structural core sandwich structures (P. Patel, T. Nordstrand and L.A. Carlsson). Boundary effects and local stability of sandwich panels (V. Skvortsov). Overall behaviour of laterally loaded shallow sandwich panels (V. Skvortsov and E. Bozhevolnaya). Geometric non-linear analysis of sandwich structures (J.T. Barbosa, A.M. Ferreira, J. César de Sá and A. Torres Marques). Plastic interface stability in bimetallic layers subjected to biaxial loading (J.L. Alcaraz and J. Gil-Sevillano).

Dynamic and impact behaviour. Dynamic behaviour of sandwich structures used in air transport (A. Moreno). Identification of the dynamic material properties of composite sandwich panels with a mixed numerical experimental technique (I. Peeters and H. Sol). New elastodynamic solutions to forced vibration problems of layered rectangular viscoelastic plates (S. Karczmarzyk). Theory for small mass impact on sandwich panels (R. Olsson). Effect of ballistic impact on the compression behaviour of carbon/gass hybrid composite sandwich panels for military bridging structures (N. Perche, B. Hilaire, J.C. Maile and J.M. Scanzi). Penetrating impact strength of sandwich panels-meaningful test method and simplified prediction (M. Hildebrand). Contribution of the response surface methodology to the study of low velocity impact on sandwich structures (F. Collombet, S. Pecault, P. Davies, D. Choquese, J.L. Lataillade and A. Torres Marques). Energy absorption charicteristics of a foam-cored sandwich panel with fibre-reinforced plastic inserts (J.J. Carruthers, M.S. Found and A.M. Robinson).

Experimental testing and control. Theoretical and experimental analysis of dissymmetrical sandwich plates with compressible core (B. Castanié, J.J. Barrau, S. Crézé and J.P. Jaouen). Viscoelastic properties of steel/polymer/steel sandwich structures (S. Bistac, M.F. Vallat and J. Schultz). Bending fatigue behaviour of PUR-epoxy and phenolic 3D woven sandwich composites (H. Judawisastra, J. Ivens and I. Verpoest). Characterization of the mechanical behaviour of wood laminates with the help of a flexion-compression device (G. Mussot-Hoinard and G. Ferron). Applying the grid method to the measurement of displacement and strain fields through the thickness of a sandwich beam (L. Dufort, M. Grédiac, Y. Surrel and A. Vautrin). Moisture detection in sandwich plates using infared thermography under microwave excitation (J.C. Kneip, X.J. Gong and S. Aivazzadeh).

Sandwich and constituents properties. Modelling of the core properties of sandwich-fabric panels with the help of finite elements (J. Pflug, A.W. van Vuure, J. Ivens and I. Verpoest). Determination of material properties for structural sandwich calculations: From creep to impact loading (P. Davies, R. Baizeau, A. Wahab, S. Pecault, F. Collombet and J.L. Lataillade). Mechanical modelling and characterisation of a new structural filler made of small spheres assembly (K. Ioualalen, Ph. Olivier and J.P. Cottu). Experimental determination of the dynamic properties of a soft viscoelastic material (C. Remillat, F. Thouverez, J.P. Laine and L. Jézéquel). Recent developments in 3D-knittings for sandwich panels (D. Philips, I. Verpoest and J. van Raemdonck). A new sandwich panel (skin in glass-carbon hybrid fabric/core in carbon mat): Manufacturing and mechanical characteristics (M. Cavarero, L. Prunet, B. Ferret and D. Gay). Sandwich panels for high speed airport shuttle (A.F. Brevik).

Sandwich design. Finite element aided design software for laminated and sandwich plate (G. Eyraud and W.S. Han). Genetic algorithm and performance indices applied to optimal design of sandwich structures (D. Bassetti, Y. Brechet, G. Heiberg, I. Lingorski and P. Péchambert). Construction methods for big and heavy loaded fibre reinforced composite sandwich structures demonstrated on a SES hull (R. Wallat, A. Eisenhut and G. Ziegmann). Sandwich plates with "through-the-thickness" and "fully potted" inserts (O.T. Thomsen). Failure modes in sandwich T-joints (E.E. Theotokoglou). List of participants.

Advances in Nonlinear Programming: Proceedings of the 96 International Conference on Nonlinear Programming. Edited by Ya-xiang Yuan. Kluwer Academic Publishers, Dordrecht. (1998). 351 pages. $149.00, NLG 280.00, GBP 96.00.

Contents:

Preface. I. Key note lecture. 1. The use of band matrices for second derivative approximations in trust region algorithms (M.J.D. Powell). II. Invited lectures. 2. A primal-dual interior method for nonconvex nonlinear programming (David M. Gay, Michael L. Overton and Margaret H. Wright). 3. Structure and efficient Hessian calculation (Thomas F. Coleman and Arun Verma). 4. Piecewise line-search techniques for constrained minimization by quasi-Newton algorithms (Jean Charles Gilbert). 5. Newton-type methods for variational equalities (Jiye Han and Defeng Sun). 6. Computer solution of linear programs: Non-simplex algorithms (J.L. Nazareth). 7. Combining trust region and line search techniques (Jorge Nocedal Ya-xiang Yuan). 8. SQ^2P, sequential quadgratic constrained quadratic programming (Serge Kruk and Henry Wolkowicz). 9. An example of non-convergence of trust region algorithms (Ya-xiang Yuan). III. Contributed papers. 10. Combining trust region and affine scaling for linearly constrained nonconvex minimization (Thomas F. Coleman and Yuying Li). 11. Some properties of a new conjugate gradient method (Y.H. Dai and Y. Yuan). 12. Using Huber method to solve nonlinear L_1-norm problem (Li Gao). 13. Robust methods for an inverse heat conduction problem (Richard Lee). 14. Superlinear convergence of a symmetric primal-dual path following algorithm for SDP (Zhi-Quan Luo, Jos F. Sturm and